Remarks

Status of The Claims

Claims 1, 8-10, 14, and 29 are amended.

Claims 2-5, 12-13, 15-23, 25-28, and 30-34 are canceled.

With the present amendments, claims 1, 6-11, 14, 24, and 29 are currently pending in this application. Claim 9 is amended to add sugarcane to the Markush group. Support for this amendment is in the specification of WO 2004/009761 at page 47, line 20. No new matter is added by the claim amendments.

Response To Claim Rejections Under 35 U.S.C. § 112 (Indefinite)

Claims 1, 29, and 34 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the phrase ending the claim "the expression of the artificial and known polynucleotides is not silenced" is not consistent with the preamble which reads "[a] method to reduce transgene silencing." The Examiner also states that "[the] claims do not indicate that the known or other polynucleotide was post-transcriptionally silenced before the application of the method" and, as such, how can a transgene silencing be reduced if it did not exist. In response, Applicant amends claims 1, 29, and 34 to replace the word "reduce" with the word "avoid." By this amendment, the clarification is made that the claims pertain to methods of avoiding gene silencing when transforming cells comprising a known polynucleotide with an artificial polynucleotide encoding a polypeptide that is at least 98% identical to the polypeptide encoded by the known polynucleotide by using an artificial sequence comprising SEQ ID NO:18. Support for this amendment can be found in the specification (WO 2004/009761) at page 2, line 18, and at page 3, lines 9-11.

Claim 1 is also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because of the phrase "an artificial polynucleotide that is divergent from a known polynucleotide." In response, Applicant respectfully points out that the word "divergent" is sufficiently defined in the specification not to be indefinite. The specification (WO 2004/009761) teaches at page 14, lines 10-18, that what is intended by the term "divergent" is "polynucleotide molecules that encode the same polypeptide where these molecules have a sequence of nucleotides of their entire length in which they are less than 85% identical, and there are no lengths of polynucleotide sequence greater than 23 nucleotides that are identical." Applicant, therefore, respectfully requests the withdrawal of the rejection of claims 1, 29, and 34 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Response To Claim Objections Under 35 U.S.C. § 112 (Omission Of Essential Elements)

Claims 1, 8-11, 14, 29, and 34 are rejected under 35 U.S.C. § 112 as being incomplete for omitting essential elements. According to the Examiner, the "omitted elements are: a nucleotide sequence encoding a chloroplast target peptide fused to SEQ ID NO:18 and to the 'known' or other polynucleotide" and the "specification teaches that to express CP4EPSPS to confer glyphosate tolerance in plants, a chloroplast transit peptide is necessarily fused to the CP4EPSPS coding sequence to target enzyme accumulation in chloroplasts." The Examiner further states that, although the claims do not mention glyphosate tolerance, the specification "teaches that this is the purpose of expressing this enzyme in plants."

In response, Applicant amends claims 1, 8, 10, and 14 to include a limitation pertaining to a chloroplast transit peptide operably linked to SEQ ID NO:18.

Response To Claim Objections Under 35 U.S.C. § 112 (First Paragraph - Enablement)

Claims 2, 8-11, 14, 29, and 34 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement because allegedly the specification does not enable claims wherein the artificial and known polynucleotides encode proteins that differ by as much as 2% and do not comprise a chloroplast transit peptide. In response, Applicant deletes the language "that are at least 98% identical" from said claims. In addition, Applicant amends claim 1 to indicate that the artificial and the known polynucleotide both encode polypeptides encoding SEQ ID NO:15. Claim 10 is amended to state that the artificial and known polynucleotide encodes the same polypeptide. Claim 14 is amended to specify that SEQ ID NO:18 is operably linked to a polynucleotide encoding a chloroplast transit peptide. Claim 34 is canceled.

Response To Claim Objections Under 35 U.S.C. § 103

The Examiner rejects claims 1, 6-11, 14, 24, 29, and 34 under 35 U.S.C. § 103 as being unpatentable over Drake *et al.* [WO 97/46690, December 11, 1997, Caroline R. Drake, *et al.*, Enhancement of gene expression] in combination with Barry *et al.* [U.S. Patent No. 5,633,435, May 27, 1997, Gerard F. Barry, *et al.*] and Murray *et al.* [Elizabeth E. Murray, *et al.*, Codon usage in plant genes, *Nucleic Acids Research* 17(2):477:498 (1989)]. According to the Examiner, Drake *et al.* teach a method to enhance expression of a selected protein in a plant having a gene that produces that protein, by transforming it with a nucleotide sequence that differs from that of the gene already present in the plant. The Examiner also states that Drake *et al.* assert that co-suppression occurs when plant recombinant genes are introduced into plants that already contain a gene with similar nucleotide sequence, and that co-suppression is obviated or mitigated by inserting and

expressing in a plant a nucleotide sequence encoding an RNA that is different from that already present in the plant but encodes the same protein.

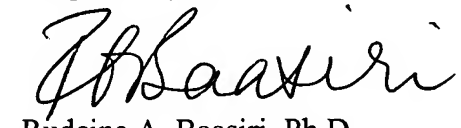
Applicant respectfully disagrees with the Examiner that claim 1 is obvious in view of Drake *et al.* Applicant interprets Drake *et al.* to teach the use of a transgene that is divergent from a native or naturally occurring gene in that plant for the purpose of preventing silencing of the native gene (*see* Drake *et al.*, Examples 1-3, and abstract of Drake *et al.*, which states that "[a] method for enhancing the expression of a selected gene in an organism while avoiding or reducing co-suppression involves the synthesis of a DNA which is altered in nucleotide sequence and is capable of expression of a protein, ideally identical to that of a protein already expressed by a DNA already present in the organism."). In Drake *et al.*'s method, only one transgene is introduced into a plant -- the second gene is a native gene. The method of claim 1 in the application has been amended to incorporate the limitations of original dependent claim 3 and, thus, now is limited to a method to avoid transgene silencing wherein both genes of interest are transgenes, rather than one transgene and one native gene.

Regarding claims 6-11, 14, 24, 29, and 34, the Examiner alleges that it would have been obvious to use the method of Drake *et al.* to produce an RNA that differs from an EPSPS-encoding nucleotide sequence of Barry *et al.*, including the *A. tumefaciens* strain CP4-encoded EPSPS, using the desired codon usage based on the desired host plant as taught by Murray *et al.* Applicant respectfully disagrees. The artificial polynucleotide molecules of claims 6, 14, 24, and 29 are not the same as the artificial sequence disclosed in Barry *et al.* In addition, neither Drake *et al.* nor Murray *et al.* teach this sequence. Murray *et al.* is merely a codon usage table for maize and, as such, does not teach the specific sequence of claims 6, 14, 24, and 29. Claim 34 is canceled. Applicant, therefore, respectfully requests the withdrawal of these claims under 35 U.S.C. § 103.

Fees

The response is timely filed. No fees are believed to be due at this time. However, should any additional fees under 37 C.F.R. §§ 1.16-1.21 be required for any reason relating to the enclosed materials, the Commissioner is hereby authorized to deduct any additional fees from Howrey LLP Deposit Account 08-3038/11899.0235.PCUS00.

Respectfully submitted,



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